

## IN THE CLAIMS

Please amend the claims as follows:

- 1 1. (Currently Amended) A gap-soliton structure comprising:
  - 2 a cladding structure having alternating layers of different index values; and
  - 3 a core region that is interposed between said alternating layers of index values and
  - 4 comprises a modified core portion in which propagation of certain frequencies is not
  - 5 allowed and includes one or more non-linear materials, wherein said core or said cladding
  - 6 structure ~~includes one or more nonlinear materials~~ are arranged so as to achieve gap-
  - 7 soliton bistability.
- 1 2. (Original) The gap-soliton structure of claim 1, wherein said cladding structure and
- 2 core region form a photonic crystal fiber.
- 1 3. (Original) The gap-soliton structure of claim 2, wherein said photonic crystal fiber
- 2 comprises a Holey fiber.
- 1 4. (Original) The gap-soliton structure of claim 2, wherein said photonic crystal fiber
- 2 comprises an omniguide fiber.
- 1 5. (Canceled)
- 1 6. (Canceled)
- 1 7. (Currently Amended) A method of forming a gap-soliton structure comprising:
  - 2 forming a cladding structure having alternating layers of different index values;

3 forming a core region that is interposed between said alternating layers of index  
4 values and comprises a modified core portion in which propagation of certain frequencies  
5 is not allowed and includes one or more non-linear materials; and

6 ~~providing in~~arranging said core ~~[[or]]and~~ said cladding structure ~~one or more~~  
7 ~~nonlinear materials~~ so as to achieve gap-soliton bistability.

1 8. (Original) The method of claim 7, wherein said cladding structure and core region  
2 form a photonic crystal fiber.

1 9. (Original) The method of claim 8, wherein said photonic crystal fiber comprises a  
2 Holey fiber.

1 10. (Original) The method of claim 8, wherein said photonic crystal fiber comprises an  
2 Omniguide fiber.

1 11. (Cancelled)

1 12. (Cancelled)

1 13. (Currently Amended) A gap-soliton structure comprising:

2 a cladding structure having alternating layers of different index values; and  
3 a core region that is interposed between said alternating layers of index values and  
4 comprises a modified core portion in which propagation of certain frequencies is not  
5 allowed and includes one or more non-linear materials, wherein either said core or said  
6 cladding structure is indicative to enhancing said gap-soliton bistability of said structure.

1 14. (Currently Amended) The gap-soliton structure of claim 13, wherein said cladding  
2 structure and core region form a photonic crystal fiber.

1 15. (Original) The gap-soliton structure of claim 14, wherein said photonic crystal fiber  
2 comprises a Holey fiber.

1 16. (Original) The gap-soliton structure of claim 14, wherein said photonic crystal fiber  
2 comprises an Omniguide fiber.

1 17. (Cancelled)

1 18. (Cancelled)

1 19. (Currently Amended) A method of forming a gap-soliton structure comprising:  
2 forming a cladding structure having alternating layers of different index values;  
3 and

4 forming a core region that is interposed between said alternating layers of index  
5 values and comprises a modified core portion in which propagation of certain frequencies  
6 is not allowed and includes one or more non-linear materials so that either said core or  
7 said cladding structure is indicative to enhancing said gap-soliton bistability of said  
8 structure.

1 20. (Currently Amended) The method of claim 19, wherein said cladding structure and  
2 core region form a photonic crystal fiber.

1 21. (Original) The method of claim 20, wherein said photonic crystal fiber comprises a  
2 Holey fiber.

1 22. (Original) The method of claim 20, wherein said photonic crystal fiber comprises an  
2 Omniguide fiber.

1 23. (Original) The method of claim 19, wherein said core comprises said one or more  
2 nonlinear materials in a defined region.

1 24. (Original) The method of claim 19, wherein said cladding structure comprises said  
2 one or more materials.

1 25. (Original) The gap-soliton structure of claim 1, wherein said core performs single  
2 mode guiding of light.

1 26. (Cancelled)

1 27. (Original) The gap-soliton structure of claim 1, wherein said cladding structure  
2 comprises a modified cladding portion in which propagation is not allowed.

1 28. (Cancelled)

1 29. (Original) The gap-soliton structure of claim 27, wherein said modified cladding  
2 portion comprises said one or more nonlinear materials.

1 30. (Original) The method of claim 7, wherein said core performs single mode guiding  
2 of light.

1 31. (Cancelled)

1 32. (Original) The method of claim 7, wherein said cladding structure comprises a  
2 modified cladding portion in which propagation is not allowed.

1 33. (Cancelled)

1 34. (Original) The method of claim 32, wherein said modified cladding portion  
2 comprises said one or more nonlinear materials.

1 35. (Original) The gap-soliton structure of claim 13, wherein said core performs single  
2 mode guiding of light.

1 36. (Cancelled)

1 37. (Original) The gap-soliton structure of claim 13, wherein said cladding structure  
2 comprises a modified cladding portion in which propagation is not allowed.

1 38. (Cancelled)

1 39. (Original) The gap-soliton structure of claim 37, wherein said modified cladding  
2 portion comprises said one or more nonlinear materials.

1 40. (Original) The method of claim 19, wherein said core performs single mode guiding  
2 of light.

1 41. (Cancelled)

1 42. (Original) The method of claim 19, wherein said cladding structure comprises a  
2 modified cladding portion in which propagation is not allowed.

1 43. (Cancelled)

1 44. (Original) The method of claim 42, wherein said modified cladding portion  
2 comprises said one or more nonlinear materials.